

Level 2 Functional Skills Mathematics
Sample Paper 4
4748-220

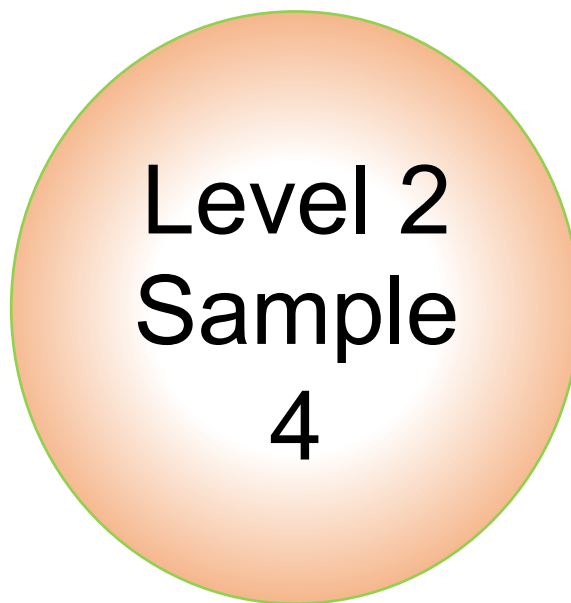


A City & Guilds Group Business

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Mark scheme
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Guidance notes for Mark Schemes

Level 1 and Level 2

Notes for marking open response Problem Solving questions in Section 2:

The mark scheme has been carefully constructed to avoid penalising candidates repeatedly for similar errors.

1) The principle of follow through applies throughout unless otherwise stated. This allows the candidates to gain credit for subsequent correct calculation based on a previous incorrect answer. There is no follow-through between questions, but may be in multi-stage calculations within a question.

2) Units or numbers shown in brackets on the mark scheme are not required for the awarding of mark/s on the candidate's paper. However, if a candidate states units they must be correct:

eg 24(cm) means accept 24cm or 24 but not 24m

eg (£)72.5(0) means accept £72.50 or £72.5 or 72.50 or 72.5

3) Correct money format is expected in final answers unless otherwise indicated eg by brackets ie pounds must have two decimal places or no decimal places unless otherwise stated.

eg (£)5.00 or (£)5 not (£)5.0

eg (£)72.50 not (£)72.5

eg (£)37.43 not (£)37.432

4) URT means unrounded, rounded or truncated; the underlining defines the acceptable limit of approximation:

eg 860. 8652 URT (U is the unrounded version)

the following are acceptable: 860 (T) or 861 (R) 860.8 (T) or 860.9 (R) or 860.86 (T) or 860.87 (R) or 860.865 (R) or 860.8652 (U) but not eg 900.

The 3rd and 4th columns of the mark schemes show the marks to be given for specific responses. Marks in bold are for fully correct answers. Where full marks are not achieved, examiners will award the marks that correspond to the responses given in the grey rows below. Any unforeseen but creditable responses are noted during the early stage of marking and are considered and, where appropriate, added to the mark scheme by the Chief Examiner when the mark scheme is finalised.

Where the marks are awarded for a *complete correct method with one calculation error*, examiners give the mark for a substantially correct solution with a single accuracy error or single (or consistent) early rounding, but not with a method error.

Maths Level 2 Sample 4: Section 1 – CALCULATOR NOT PERMITTED

Examiners should accept correct answers given as words, including misspelt variants. Candidates must not lose marks for incorrect spelling.

Question	Total marks	Marks	Marks awarded for	Item type	Subject content statement reference
1	1	1	32	UPK Short answer fixed response	SCS2 [1]
2	1	1	82.5(%) or $82\frac{1}{2}$ (%)	UPK Short answer fixed response	SCS4 [1]
3	1	1	C	UPK MC fixed response	SCS21 [1]
4	1	1	1 or -1	UPK Short answer fixed response	SCS12 [1]
5	1	1	$\frac{5}{6}$	UPK Short answer fixed response	SCS27 [1]
6	1	1	27(litres)	UPK Short answer fixed response	SCS14 [1]
7	1	1	168	UPK Short answer fixed response	SCS5 [1]
8	1	1	25.5(g)	UPK Short answer fixed response	SCS23 [1]
9	1	1	19.091	UPK Short answer fixed response	SCS10 [1]
10	1	1	140(°)	UPK Short answer fixed response	SCS22 [1]
11	2	2	15(hours)	Problem solving short answer fixed response	SCS11 [2]
		1	40(hours)		
12	3	3	1 (hour) 42 (minutes) OR 102 (minutes)	Problem solving short answer fixed response	SCS15 [3]
		2	1.2 (hours) or equivalent and 0.5 (hours) or 30 minutes		
		1	1.2 (hours) or equivalent or 0.5 (hours) or 30 minutes or 0.5×60 or 1.2×60 or attempt at method using formula for finding the time eg $T = \frac{D}{S}$ or equivalent		
Total for Section 1					15 marks

Maths Level 2 Sample 4: Section 2 – CALCULATOR PERMITTED

Examiners should accept correct answers given as words, including misspelt variants. Candidates must not lose marks for incorrect spelling.

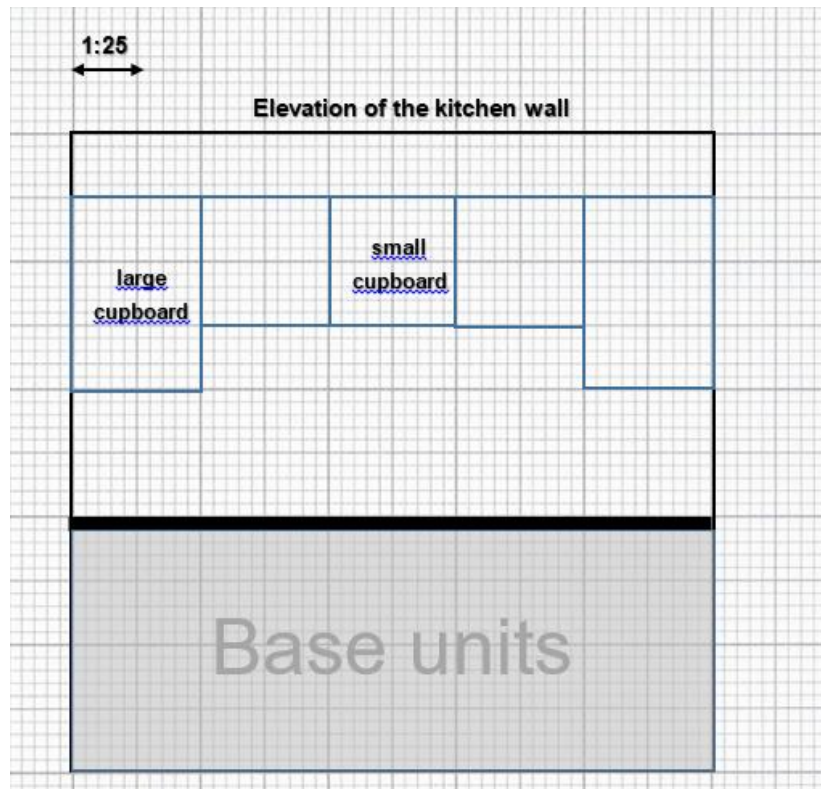
Question	Total marks	Marks	Marks awarded for	Item type	Subject content statement reference
1	1	1	$\frac{1}{14}$	UPK Short answer fixed response	SCS8 [1]
2	1	1	D ($4\frac{15}{16}$)	UPK MC fixed response	SCS7 [1]
3	1	1	B	UPK MC fixed response	SCS10 [1]
4	1	1	1440(cm ³)	UPK Short answer fixed response	SCS17 [1]
5	1	1	B (386439)	UPK MC fixed response	SCS19 [1]
6	1	1	no with a valid comment referring to the relationship between the euro and the pound eg No, this is too much, a euro is worth less than a pound eg No, €84 is about £75 (which is less than £100) eg No, £100 is €112 (which is more than €84) Note: a calculation is not required for this mark	UPK Short answer fixed response	SCS18 [1] Check for reasonableness
7	2	2	50(ml)	Problem solving Short answer Fixed response	SCS11 [2]
		1	25(ml) seen or $75 \div 1.5$ or $75 \div 3$		
8	3	3	25.571958 (km) URT	Problem solving Short answer Fixed response	SCS3 [2] SCS14 [1]
		<i>if 3 marks not awarded apply the following 2 part mark scheme</i>			
		1	1.25(feet) seen for step length OR 0.000381 (km) for step length		
		2	value for distance in km for their step length eg 25.571958(km) URT OR complete correct method with one calculation or rounding error		
		1	value for distance in feet for their step length eg 83 897.5(feet) or x 0.0003048 seen		
9	3	3	(£)57.37	Problem solving Short answer Fixed response	SCS13 [3]
		2	(£)3.99 seen for 6.5% discount or (£)57.3716 seen		
		1	(£)3.9884 or method for finding 6.5% discount eg x 0.065 or $\div 100 \times 6.5$ or x 0.935 or (£)61.36 seen		

10	4	3	4.0739748(%) URT	Problem solving Short answer Fixed response	SCS1 [1] SCS6 [3]
		2	0.040739748 or 1.040739748 or $456 \div 11193$		
		1	456 or $11649 \div 11193$		
		1	suitable explanation consistent with their results eg 4.1% (local) < 8% (national)		
11	5	4	145.625 (yards) for the mean	Problem solving Short answer Fixed response	SCS24 [5]
		3	5825 for $\sum fx$		
		2	all 4 fx values ie 550, 1852.5, 2507.5, 915		
		1	40 for n or any one fx eg 550 or 1852.5 or 2507.5 or 915 four consistent mid points seen eg 137.5, 142.5, 147.5, 152.5		
		1	suitable explanation consistent with their results eg no it 145.625 (yards) < 150 (yards) eg yes it 145.625 (yards) is quite close to 150 (yards)		
12	5	1	suitable trend line line of best fit (accept any straight line through the points with roughly equal number of plots either side	Problem solving Short answer Fixed response	SCS2 [1] SCS13 [1] SCS28 [3]
		<p style="text-align: center;">Sale prices of ZX Roadsters based on mileage</p>			
		1	value for price consistent with their trend line eg £3400 tolerance $\pm \frac{1}{2}$ small square		
		1	correct plot on graph to show their value		
		2	correct value of offer to customer ie 70% of their price eg £2380		
		1	value for 30% of their price or method for 70% eg their price x 0.7		

13	6	6	(£)13431.52	Problem solving Short answer Fixed response	SCS1 [1] SCS13 [3] SCS15 [2]
		if 6 marks not awarded apply the following 2 part mark scheme			
		note: do not penalise the omission of pence			
		2	(£)14414(.40) for annual gross pay		
		1	36 hours (per week) or 1872 hours (per year)		
		4	correct take home pay using their annual gross pay ie gross pay – (gross pay – 12500) x 0.2 - 600 eg (£)13431.52		
		3	take home pay without deduction of national insurance using their gross pay or complete correct method with one calculation or rounding error eg (£)14031.52		
		2	take home pay calculated without deducting personal allowance using their gross pay eg (£)10931.52 from (£)14414.40 x 0.8 – (£)600		
1	take home pay without deducting personal allowance or national insurance eg (£)11531.52 from (£)14414.40 x 0.8				

14	6	4	2 rectangles drawn 3cm (15 small squares) x 2cm (10 small squares) ± ½ small square AND 3 rectangles drawn 2 cm (10 small squares) x 2cm (10 small squares) ± ½ small square	Problem solving Short answer Fixed response	SCS18 [3] SCS20 [1] SCS21 [2]
		3	1 rectangle drawn 3cm (15 small squares) x 2cm (10 small squares) ± ½ small square AND 1 rectangle drawn 2 cm (10 small squares) x 2cm (10 small squares) ± ½ small square		
		2	1 rectangle drawn 3cm (15 small squares) x 2cm (10 small squares) ± ½ small square or 1 rectangle drawn 2 cm (10 small squares) x 2cm (10 small squares) ± ½ small square		
		1	3cm or 2cm (for scaled cupboard dimensions) or 2cm (for scaled distance above worktop) seen in working or ÷ 25 seen in working		
		1	2cm (10 small squares) gap between the base of the large cupboard and the top of the worktop		
		1	one (large) cupboard and one (small) cupboard labelled or seen in key		

Diagram for S2Q14



15	6	2	6 hours 42 minutes (mean) for this week	Problem solving Short answer Fixed response	SCS25 [6]
		1	46 hours 54 minutes or 42 hours 294 minutes		
		2	2 hours 33 minutes (range) for this week		
		1	max and min figures seen ie 8 hours 22 minutes and 5 hours 49 minutes		
		1	Suitable comment with reference to their averages eg she slept longer this week than last week 6 hours 42 minutes > 5 hours 19 minutes eg she slept fewer hours last week 5 hours 19 minutes < 6 hours 42 minutes		
		1	Suitable comment with reference to their range eg the hours slept last week were more varied eg the hours slept this week were more consistent		
Total for Section 2 45 marks					